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The Survivor Benefit Plan: A Cost-Benefit Analysis

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                December 2007

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Investing for one's future is a concern for the majority of military retirees. Service members have more choices than their civilian counterparts when planning for retirement. One alternative available to military members is the Survivor Benefit Plan (SBP), which allows retirees to provide for their family's welfare in the event of their untimely death. The purpose of this paper is to analyze the cost effectiveness of SBP in comparison to other insurance or investment options. This paper provides an overview of SBP and possible alternatives. Additionally, a mathematical model has been constructed that conducts a cost-benefit analysis of SBP and alternatives to determine the most beneficial course of action for future retirees. Our major conclusion is that SBP is the most attractive available option only if the military member expects to live for a sufficiently long period and also expects his (or her) spouse to outlive him by a significant amount. However, this result is sensitive to rate of inflation.

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THE SURVIVOR BENEFIT PLAN: A COST-BENEFIT ANALYSIS

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THE SURVIVOR BENEFIT PLAN: A COST-BENEFIT ANALYSIS

ABSTRACT

Investing for one's future is a concern for the majority of military retirees. Service members have more choices than their civilian counterparts when planning for retirement. One alternative available to military members is the Survivor Benefit Plan (SBP), which allows retirees to provide for their family's welfare in the event of their untimely death. The purpose of this paper is to analyze the cost effectiveness of SBP in comparison to other insurance or investment options. This paper provides an overview of SBP and possible alternatives. Additionally, a mathematical model has been constructed that conducts a cost-benefit analysis of SBP and alternatives to determine the most beneficial course of action for future retirees. Our major conclusion is that SBP is the most attractive available option only if the military member expects to live for a sufficiently long period and also expects his (or her) spouse to outlive him by a significant amount. However, this result is sensitive to rate of inflation.

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I.   INTRODUCTION

A.   THE SURVIVOR BENEFIT PLAN (SBP)

1.   A Financial Support System

Providing financial support and freedom for one's family is a major concern for many Americans. The Department of Veterans Affairs has devised an optional insurance plan that assists retiring military service members planning how to provide for their families upon their death. The Survivor Benefit Plan (SBP) is a financial support system that provides a portion of the retired service member's pension to a specified family member (or possibly a close business associate) upon the death of the service member. This financial benefit is then given in monthly installments, similar to an annuity, to the specified family member for an indefinite period of time. This plan is designed to assist retired service members in caring for their spouses after their demise; however, there are types of programs within the SBP that allow service members to care for others after their death.

2.   SBP Cost

The Survivor Benefit Plan looks like a sound financial program but it is not free for the retired service member. This plan is like a life insurance policy where the service member must pay a monthly fee from retirement until death in order for his or her beneficiary to receive payment. However, unlike a life insurance policy the payments only apply so long as the designated beneficiary is still alive.   In cases where the beneficiary dies before the retired service member, the payments made toward this plan become a sunk cost.   In this case, the retired service member could be better off purchasing an annuity after retirement as opposed to enrolling in SBP. These problems can pose multiple questions for the retiring service member based upon his or her

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situation. These questions include whether the service member should enroll in SBP and if so, how much of a contribution should they make to maximize benefits from this program?

3. SBP Model Description

In order to assist service members who will decide whether or not to enroll in the SBP, our MBA project will construct a model to determine the optimal degree of SBP participation (if any). This model will assist in conducting a cost-benefit analysis of the SBP (SBP model can be accessed at: http://bosun/nps.edu/uhtbin/hyperion-image.exe/07Dec_Beatty_Kang.xls). This model will consider life expectancy of the service member and the spouse, the opportunity cost of capital, rank of the retiring service member, and inflation. Additionally, this document will serve as an appendix to the model which has been created. Contained within will be brief discussions of alternatives to the SBP. This appendix will also contain the bulk of our research, to include assumptions and risks. Finally displayed will be our conclusions as to the financial soundness of the SBP and the sensitivity of the investment into SBP when there are fluctuations in ages of death of both the beneficiaries and the investors.

II.   SBP PROGRAM OVERVIEW

A.   BACKGROUND

There are five programs available within the SBP. Spouse Only Coverage, Former Spouse Only Coverage, Children Only Coverage, Spouse/Former Spouse with Children Coverage, and Insurable Interest. The majority of these programs have different costs and death benefits associated with them. What is common to all is a 55 percent disbursement based on the selected base amount.

The SBP is based upon a "base amount", or a percentage of the retirement pay, which is elected on the date of retirement. For example, if a retiree elects to have full coverage, then the base amount would be 100 percent of the monthly retirement pay. If the retiree elects to have only 60 percent coverage, then the base amount would be 60 percent of the monthly retired pay. However, the base amount must be at least $300.

Both the costs and the benefits associated with the SBP are based upon which program is chosen. These are discussed in the following paragraphs. There is a maximum amount of payments into the Survivor Benefit Plan. Once the retiree has paid into the plan for 30 years or 360 payments, and has reached 70 years of age, then he or she is fully vested in the plan and will no longer have to surrender a portion of his or her monthly pay.

1.   Spouse Only and Former Spouse

These particular programs are the most basic and the most utilized. Each program provides the spouse or former spouse with the monetary benefit upon the demise of the retiree. Programs costs are calculated by multiplying the base amount by 6.5 percent. For example, if the base amount were $1000 per month, then the cost per month to a retiree would be $65 per month until the service member's death. Upon his or her death, the benefit towards the spouse/former spouse would be $550 per month ($1,000 x .55 %= $550) based upon the previous benefit calculation.

2. Children Only

This program can be an automatic coverage when an active duty member dies and there is an eligible child or children, but no eligible spouse. Otherwise, this program can be selected in lieu of Spouse Only coverage with the approval of the spouse. Eligibility for children under this program is the same as with (Former) Spouse with Children coverage. Qualifications under this program include children under the age of 18, or 22 if pursuing a full-time course of study, child is unmarried, or is handicapped and not capable of self-support (USMC Manpower & Reserve Affairs [USMC M&RA], ND). Payment annuities are based on the 55 percent formula of the retired pay which is divided among the eligible children. As one child becomes ineligible, the total annuity amount is then divided among the remaining eligible children. The cost of the program is calculated based on the age of the retiree and of the youngest child at the time of retirement. Tables depicting the various rates are included in the model. A benefit of Children Only coverage is discussed in the assumption section regarding concurrent receipts with the VA's Dependency and Indemnity Compensation (DIC).

3. Spouse (Former Spouse) and Children

In this program, the spouse is the primary beneficiary (see Spouse Only and Former Spouse section) and the children only receive benefits upon the death of the spouse or through remarriage prior to the age of 55. The eligibility requirements and benefit payments for children are the same as the Child Only coverage listed previously. The cost of the program is also calculated based on age of the retiree, the age of the youngest child, and the age of the spouse at the time of retirement. The premium includes the regular cost for (Former) Spouse Only coverage (6.5 percent) plus the additional cost to also cover the children. The tables depicting the various rates are included in the model.

4. Insurable Interest

This program is unique as it allows the retiring service member to include family members other than his or her spouse. Family members closer in relation than a cousin

are eligible. These include parents, brothers, sisters, aunts, uncles, or even grandparents. The benefits associated with this program are also 55 percent of the base amount. The cost, however, is calculated in a very different matter; based upon the difference in age between the beneficiary and the retiree. The base cost of the insurable interest plan is 10 percent of the base amount. In addition, for every full five years older the retiree is in age than the beneficiary; the cost increases another 5 percent per month. For example if the retiree was 42 years old and the beneficiary was 20 years old, then there would be an age difference of 22 years. This age difference would equate to 4 full five year periods. Therefore the cost would be as follows:

$$\text{Cost} = 10 + (4*5\%) = 30\% \text{ of the base amount}$$

The benefit per month is calculated by subtracting the cost per month from the base amount and then multiplying that amount by 55 percent. The result is the monetary benefit that is paid to the insurable interest per month. For example, if the base amount were $1000 and the ages of the retiree and the beneficiary were the same as above then the benefit per month would be calculated as follows:

$$\text{Benefit} = 55\% * [1000 - (1000 * 30\%)] = 55\% * 700 = \$385 \text{ per month}$$

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III. SBP MODEL

A. SPECIFICATIONS

In order to ascertain the true value of this program, a model had to be created which would weigh the costs and the benefits of the Survivor Benefit Plan and then compare SBP to available alternatives. This was not an easy task as there are many variables and equations that need to be included to make this model valid.

1. Objective Functions

This model compares two investment options to the SBP while conducting the cost benefit analysis. These two financial options are a generic investment option, which can be likened to an index fund, and a term life insurance option. Each financial option has its own risks and rewards, which will be identified in future sections.

Once a suitable alternative to the SBP is determined, an algorithm that could determine possible worth of the plans is then needed. According to the OMB Circular A-94, the measure of value to identify if a project is worth undertaking is Net Present Value (Office of Management and Budget [OMB], 1992). The reference and standard alternative options are translated into the objective functions. The three objective functions are the Final Net Present Value (NPV) of the Survivor Benefit Plan, Final Net Present Value of the generic investment, and Final Net Present Value of the term life insurance policy. These three objective functions, which are defined as NPV of Benefit – NPV of Cost, are compared to each other. If the NPV of the SBP is higher than the other two options, then the service member should enroll in SBP; if the NPV of the generic investment is higher than the other two options, then the service member should invest the same amount in the generic investment that he or she would have invested in SBP; if the NPV of the life insurance option is higher than the other two options, then he or she should invest in a term life insurance policy with premiums equivalent to the SBP cost.

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To determine the Final NPVs, the decision variables had to be determined. These variables are illustrated in the influence diagram attached and the final equations are discussed in detail below.

2.   Elements of NPV

To determine the Final Net Present Value of each plan requires a calculation to determine each element of the final formula. This is broken down in equation format below.

$$\text{NPV of Cost of SBP} = \sum \frac{\text{Yearly Contribution into SBP}}{[(1+\% \text{ Return on Opportunity Cost of Capital)}\string^\text{Year}] / [(1 + \text{Rate of Inflation)}\string^\text{Year}]}$$

Note: The final year is determined by the most probable year of death of retiree. This is based upon the Actuarial Mortality Tables given by the Social Security Administration (SSA). When using the calculator, the retiree can either use the National life expectancy average for his or her age group or can estimate their life expectancy. This may be used if the retiree has a medical condition or other circumstance that may shorten his or her life span, or has reason to anticipate a longer than average life span.

$$\text{NPV of Benefit of SBP} = \sum \frac{\text{Yearly Payment to Beneficiary from SBP}}{[(1+\% \text{ Return on Opportunity Cost of Capital)}\string^\text{Year}] / [(1 + \text{Rate of Inflation)}\string^\text{Year}]}$$

Note: The first year that is used in this equation is the same year in which the beneficiary begins to receive benefits. In short, the first year in this equation is the estimated year of death of the retiree because the beneficiary does not receive benefits until the retiree dies. Additionally, the NPV's final year is the estimated year that the beneficiary will die.

NPV Cost of Generic Investment = ∑ ____Yearly Contribution into SBP____

[(1+ % Return on Opportunity Cost of Capital)^Year] / [(1 + Rate of Inflation)^Year]

Note: Same time period rules apply to this equation as the NPV of Cost of SBP. Since this is an alternative option, it is assumed that the contribution into this generic investment per year would be the same as the contribution per year into SBP.

NPV Benefit of Generic Investment = ____Future Value of Investment____

[(1+ % Return on Opportunity Cost of Capital)^Year] / [(1 + Rate of Inflation)^Year]

Note: The Future Value of the Investment assumes that the contributed money grows continually during the investment period. The time period which is used is the year that the beneficiary will receive the lump sum payment from the investment (e.g., when the retiree dies). It should be noted that this NPV of the benefit assumes the beneficiary receives a lump sum as opposed to an annuity.

NPV Cost of Life Insurance = ∑ __Life Insurance Premium Based on Cost of SBP____

[(1+ % Return on Opportunity Cost of Capital)^Year] / [(1 + Rate of Inflation)^Year]

+ ∑ ____Difference Between Insurance Premiums and Cost of SBP____

[(1+ % Return on Opportunity Cost of Capital)^Year] / [(1 + Rate of Inflation)^Year]

Note: The premiums were calculated by referencing what one would have invested into the SBP and then determining the life insurance amount and premium depending on SBP investment. The delta was viewed separately and is assumed to be invested into an index fund of the retiree's choice.

NPV Benefit of Life Insurance = $\dfrac{\text{Amount of Insurance Purchased}}{[(1+ \% \text{ Return on Opportunity Cost of Capital})^{\text{Year}}] / [(1 + \text{Rate of Inflation})^{\text{Year}}]}$

$+ \dfrac{\text{Future Value of the Difference Between Insurance Premiums and Cost of SBP}}{[(1+ \% \text{ Return on Opportunity Cost of Capital})^{\text{Year}}] / [(1 + \text{Rate of Inflation})^{\text{Year}}]}$

Note: The amount of the life insurance purchased becomes zero when the policy expires. Therefore, for the majority of model users, the life insurance policy expires after the 30 year point and the NPV decreases drastically.

After making these calculations, a final NPV of both alternatives can be determined. Once the final NPVs are determined, they can be compared in the model to determine whether or not SBP is the best investment option. However, there were a number of constraints that applied to this model. The majority of them are military pay related, like years of service must be at least 20 years to receive a retirement benefit. These constraints are listed below.

3. Summary of Constraints

Years of Service ≥ 20 Years

Years of Service ≤ 40 Years

Years of Service ≤ 30 Years if Rank ≤ O-6

Age at Retirement ≥ 38 Years of Age

Base Amount ≥ $300

Base Amount ≤ 100% of Base Retirement Pay

Max cost for Insurable Interest ≤ 40% of Base Retirement Pay

Max # of payments = 360 or 30 years AND age ≥ 70

IV   MODEL ASSUMPTIONS

A.   OVERVIEW

This project makes several assumptions for overall simplicity and "user-friendliness". To provide a user-friendly document, some simplifications were necessary but do not impact the overall objective - to provide useful guidance to future retirees in a condensed format that supports a more informed decision. Information regarding each assumption is provided below to clarify the model and to enhance the reader's general knowledge.

1.   The Social Security Offset

This model assumes that the SBP annuity received by the eligible beneficiary occurred with an effective retirement date of 1 April 2008 and thereafter, at the 55 percent rate. Additionally, other factors that may affect SBP, payments such as other social security and Veterans Affairs (VA) benefits, are not addressed to avoid unnecessary complexity in the simulation. Links to various organizations' frequently-asked-questions sections are provided in Appendix G along with key SBP information from the Defense Finance and Accounting Service (DFAS) and several others. This information, supplemented by retirement counselors and a retiree's own efforts, will ensure that the most up-to-date information is available when considering the effects of social security benefits on SBP payments.

Under the previous two-tier system, an eligible SBP beneficiary received 55 percent of the selected base amount. Upon reaching the age of 62, that beneficiary's SBP annuity was reduced to 35 percent for the purpose of offsetting social security survivor benefits. The National Defense Authorization Act for fiscal Year 2005 eliminates this reduction at age 62 to maintain a 55 percent SBP annuity through the life of the eligible beneficiary.   Eliminating   the   social   security   offset   will   become   effective

on 1 April 2008. Eligible beneficiaries who reach 62 years of age prior to that date face a phase-out of the offset that began on 1 October 2005 and ends on 31 March 2008 (U.S. Army Human Resources Command, ND):

Table 1.   Summary of Previous Two-Tier System

Period	Amount of Annuity
For months prior to October 2005	35 percent
October 2005 through March 2006	40 percent
April 2006 through March 2007	45 percent
April 2007 through March 2008	50 percent
April 2008 and after	55 percent

Source: After DOD SBP Website (February 2007)

For example, a 62-year-old beneficiary that begins to collect SBP payments on 1 January 2008 will receive an annuity of 50 percent until 1 April 2008 when it increases to 55 percent. Phasing-out the social security offset eliminated the supplemental survivor benefit plan (SSBP) which provided retirees the option to protect their beneficiary from the reduction in annuity to 35 percent at the age of 62. For simplicity, the social security offset is ignored and the model assumes that SBP annuity payments will begin on or after 1 April 2008.

2.   Dependency and Indemnity Compensation (DIC)

One of the VA benefits that is excluded from the model is the DIC program. DIC stipends are compensation for eligible surviving spouses of service members whose deaths have been established by the VA as service-connected. Concurrent SBP and DIC payments are not allowed, so SBP payments are reduced dollar for dollar. For example, a widow entitled to a $1,000 SBP payment and a DIC payment of $1,033 receives the highest of the two, in this case $1,033, not both (e.g. $2,033). In 2003, due to an increase

of widows from the Global War on Terrorism, Congress has allowed concurrent receipts for service members who died after 23 November 2003 by designating surviving children as beneficiaries instead of the spouses (Alvarez, 2006). Even though this step by Congress eases restrictions on the SBP, widows of service members who died prior to 23 November 2003 are still not authorized concurrent receipts of the SBP and DIC stipend. In the previous example of the DIC stipend exceeding the SBP payment, the beneficiary is refunded all SBP contributions at face value without consideration for interest. In addition, the refund is then taxed (to the decrement of widows' benefits).

3. Tax and Its Implications

The model ignores the tax bracket of the retiree while paying SBP premiums and the tax bracket of the surviving spouse while receiving SBP benefits. However, general tax information as it pertains to SBP is provided as background information.

SBP contributions are non-taxable and do not count against taxable income but SBP payments to the beneficiary are taxable. Therefore, the true cost of SBP is less than the retiree's contribution to the program since SBP premiums are based on pre-tax dollars (USMC M&RA, ND). A tax benefit arises when (as typically occurs) the retiree's tax bracket is higher during the contribution phase than the beneficiary's tax bracket during the SBP annuity phase (DoD Office of the Actuary, 2007). The SBP decision should be based on the specific tax situation of the retiree and their spouse (e.g. non-resident alien SBP beneficiary living overseas) and current tax laws even though not addressed in this model. DFAS and the IRS should be contacted regarding non-resident alien issues, because SBP annuities may result in a 30 percent tax withholding (USMC M&RA, ND).

4. 6.5 Percent Formula: SBP Premiums

Recent changes in the SBP have mandated that the premiums for the spouse program be a constant 6.5 percent for all service members. The DoD SBP website states that "…if you became a member of a uniformed service on or after March 1, 1990, and you are retiring for length of service [not for disability or at age 60 as a reservist (non-regular service)], SBP costs will be calculated only under the 6.5 percent formula…"

Prior to this change the premium percentage would have been 2.5 percent of the first $649.00 ($652 on 1 April 2007) of the elected base amount plus 10 percent of the remaining base amount. For ease of calculation, the SBP model will be calculated using only the 6.5 percent rule. Since this model will predominate in future years, the prior premium calculation will not be used.

5.   Reserve Component Survivor Benefit Plan (RCSBP)

This model only applies to active duty personnel. It does not consider the reserve component (e.g. Reserve and National Guard members). Active duty service members are automatically covered under SBP after 20 years of service, but a reservist's beneficiary does not have standard SBP coverage until retirement pay begins at age 60. In accordance with the "Survivor Benefit Plan (SBP): Guide for a Spouse of a Military Retiree" (Defense Civilian Personnel Management Service, 2003), an eligible reservist must follow one of the three options listed in Table 2.

6.   CSB/REDUX

The Career Status Bonus (CSB) and REDUX will not be used in this model. REDUX is a retirement program for service members that intend to serve for 20 years; it allows them to opt for a $30,000 bonus (CSB) at their 15-year mark. In exchange for the bonus, the service member receives a smaller retirement check. The alternative is normal retirement based on the high-3 retirement plan. The CSB decision is made during the 15th year of service and is irreversible once made. Unlike SBP with the standard high-3 retirement plan, the REDUX's cost-of-living-adjustments (COLA) are not based on the normal Consumer Price Index (CPI). Rather, the REDUX COLA adjustments are based on the CPI minus one percent except at age 62 when the REDUX program provides for a one time COLA adjustment as if the retiree was under the high-3 system. Afterward, the REDUX COLA adjustment resumes its CPI minus one percent calculation (Congressional Budget Office, 2006).

Table 2.   RCSBP Options

Option A: The member declines to make an election for or against SBP coverage until reaching age 60. There would be no protection in the years between becoming retirement-eligible and attaining age 60. Under Option A, the survivor would never receive any SBP benefits if the retired member died before age 60.
Option B: A member can guarantee the survivor an annuity starting on the date the retiree would have attained age 60 if the retiree dies before age 60. If death is after age 60 the annuity begins the day after the date of death.
Option C: This option guarantees the survivor will receive an RDCSBP annuity immediately upon the death of the retired Reserve/national Guard member, even if death occurs before age 60.

Source: After Guide for a Spouse of a Military Retiree (Updated 2003)

CSB/REDUX also contains factors that affect its cost vs. benefit comparison. Some of the key points of CSB/REDUX are: 1) the longer the service member lives, the greater the loss in retirement income; 2) both the REDUX and high-3 retirement are adjusted for inflation, but the REDUX is adjusted less; 3) the higher rank and less time of service, the greater the reduction in retirement income; 4) fast-trackers who retire under the REDUX program experience greater loss of retirement income; and 5) REDUX retirement income is significantly smaller than the high-3 plan (Quester & Lee, 2005). With the reduced retirement income under REDUX, some retirees may not be able to afford SBP. The specific effects of REDUX on SBP are unknown at this time and are in any case beyond the scope of the model. Thus, with its numerous variables, the model will not capture the CSB/REDUX in its cost-benefit analysis.

7.   Mortality Rates

Life expectancy has a huge effect on both costs and benefits. To address this problem, mortality tables from the DoD Office of the Actuary and the SSA are used to

calculate death rates. These mortality tables are used assuming that they are representative of the general population by age and gender at the time of retirement, for both the retiree and their spouse. Additionally, the model includes a data table that displays death ages of both the retiree and the beneficiary. This data table displays which financial option is best depending on the ages at death of both the retiree and the beneficiary. This data table allows the user to keep constant all inputs in the model, but varies the ages of death, thereby allowing the user to determine the best financial option depending on ages of death. In essence this provides the user a break even point for each plan depending on ages of death. This ability for parametric adjustment allows users of the model to conduct a sensitivity analysis if desired.

8. Health Concerns

Financial benefits of the SBP and the compared alternatives all depend upon the age at death of the military service member. While service members all have varying health levels when they retire, this model assumes that all retiring service members are in good general health. This assumption has two effects on the model. First, poor health adversely affects the retiree's expected age of death. If the retiree's age of death decreases, then the total time a beneficiary would receive financial compensation would increase. This will increase the NPV of SBP benefits and decrease the NPV of the costs associated with the SBP. The effect on the life insurance option will be similar to the effect on SBP, increasing the benefit NPV and decreasing cost NPV. The effect on the investment option would be completely different. The NPV of the cost would decrease, but the NPV of the benefits would decrease as well due to a decrease in the investment account's principal at time of death.

A second implication of worse health would be a dramatic increase in life insurance premiums. Currently, the model uses a "preferred plus" (Appendix F&G) life insurance policy for comparison purposes.[1] The "preferred plus" life insurance policy is only available to retirees in very good physical health. If a retiree were not in good

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[1] All life insurance quotes in the model are based on a "preferred plus" status (Appendix F&G) and were acquired from www.quickquote.com

health then "preferred plus" life insurance would not be available. Insurance premiums would drastically increase, thereby decreasing the total NPV of the life insurance option.

9. Length of Insurance Policy

We assume that a long-term life insurance policy will be purchased. Life insurance is generally purchased to enable the beneficiary to maintain the same standard of living as when the service member was alive. The longest term life insurance policy available is a 30-year policy. Our assumptions state that the maximum time a retiree will use a life insurance policy is 30 years. At the end of the 30 year period, the retiree is assumed not to purchase additional life insurance. This assumption recognizes that premiums would be very high for a retiree who is at least 68 years of age, which is the minimum age for retirement at 38 with a 30 year term policy.

10. Inflation and Interest Rates

Inflation is a big risk for long-term investors. This model accounts for inflation by dividing the discounted opportunity cost of capital by the discounted rate of inflation, turning the NPV into constant dollars and assuming a nominal discount rate. This model uses the rate of inflation given by the President's Mid Year Economic Review and uses the six year inflation as instructed by the OMB Circular A-94 (OMB, 1992). The DoD Office of the Actuary recommends inflation and interest rates of three percent and six percent respectively (DoD Office of the Actuary, 2007). The model follows OMB Circular A-94 recommendation of 2.5 percent for inflation (OMB, 1992). Similar to the probability of death, the user has the option to conduct parametric adjustments to both inflation and interest rates. Interest rates can therefore be adjusted based on the retiree's assessments and attitudes toward risk. Otherwise, the model uses six percent as a default interest rate and an inflation rate of 2.5 percent.

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V. RISK

A. OVERVIEW

The determination of which alternative is the best long-term solution depends on many different factors. Some can be controlled by the investor, like the annual contribution, while other factors cannot be controlled. These risks will be discussed in detail throughout this chapter. While some of these risks apply both to the SBP and its financial alternatives, others only apply to one particular investment program.

1. Risks Applicable to All Financial Solutions

Inflation is a huge risk that affects all financial plans for the long term beyond ten years. Individuals who are planning for their long-term financial health need to consider inflation while choosing the plan that will best suit their needs. For example, when selecting a long-term financial alternative with a fixed return (like a term life insurance policy), one must consider when the benefit will accrue. If the payout from the life insurance policy occurs after a substantial period of time, like 20 years, then the payout will not be as valuable as it could have been after a ten year time period. The value of a dollar today is less than the value of a dollar tomorrow for long-term fixed benefit programs.

This effect on (real) value can be extreme or subtle depending on the rate of inflation. For example, the U.S. Department of Labor determined that the rate of inflation measured by the Consumer Price Index (CPI) averaged 2.7 percent per year over the past 15 years. Over time, this modest annual increase in prices slowly causes the value of a dollar to decrease over time. However, there have been periods in which the rate of inflation was significantly higher. For example, inflation exceeded 11% in certain years in the 1970s and early 1980s (Bureau of Labor and Statistics, 2007). If there were additional periods of extreme inflation, then a fixed benefit long-term investment would be worth considerably less in future years than previously predicted.

A constant inflation rate had to be used to account for inflation within the cost-benefit analysis model. This rate is a variable that can be adjusted in the model, but the recommended rate is 2.5 percent, based upon the guidance provided by OMB Circular A-94. OMB recommends using an inflation rate derived from economic assumptions within the White House's Mid Session Review (OMB, 1992). If the NPV calculation is for an extended period of time (beyond seven years) then the rate of inflation for the seventh year should be used. It should be noted, however, that this rate is merely an educated guess and could fluctuate considerably in later years.

One of the SBP's major selling points is reducing the risk of inflation because the benefits are inflation-adjusted. This is done using the cost of living adjustments that are generally applied every year to military service members' pay and benefits. But there are problems with this solution for inflation as discussed in the next section.

2. Risks Applicable Only to the SBP

There are two significant risks unique to the SBP; unexpected actions of the beneficiary and increases in military pay. The primary risk to the SBP option is unexpected actions of the beneficiary. Unexpected actions can include remarriage before age 55 or the death of the beneficiary prior to the retiree's death. If the SBP beneficiary dies before the retiree then the previous contributions to the SBP program are lost (Office of the Under Secretary of Defense for Personnel and Readiness, 2007); they cannot be recouped. Also, any payments that have been made cannot roll over to another beneficiary. Therefore, when the beneficiary has health concerns, the SBP may not be the best option considering the risk of predeceasing the military member.

Additionally, the benefits to the spouse stop immediately in cases where the service member dies before the spouse, but the spouse remarries prior to the age of 55. In theory, this reflects the additional wealth that the beneficiary will assume once remarried. This risk is unavoidable, as the actions of one's widowed spouse are out of his or her span of control, and should be considered in reaching a SBP decision

An additional risk to the SBP is annual COLA adjustments that are applied to military and retired service member's base pay. The COLA is an annual raise in base pay for all military service members and retirees. This raise, which is supposed to increase military pay to account for inflation and for subsequent raises in civilian job pay, is designed to keep military service members' salaries on par with civilians in similar fields. This raise, which is passed into law by Congress annually through the President's budget, is generally an annual increase.

However, this increase is not guaranteed. In practice, this pay increase is given each year at the request of the President and with the approval of Congress. This annual increase is affected by many different factors and can greatly affect both the costs and benefits for the SBP. The rate at which military pay increases varies greatly depending on the political climate, economic conditions, and the United States' global position.

Political climate can have a huge effect on the annual cost of living adjustment. The Presidents' national security policies and their agendas regarding the size and structure of the armed services can influence this increase dramatically. For example, the mid 1990s saw a dramatic shift in this country's global military position. The Cold War was seemingly over and there was a 40 percent reduction in the number of active duty military personnel (Goldich, 2005). The fall of the Soviet Union also resulted in a downsizing of the U.S. military and recruiting targets accordingly lowered. This decrease in personnel requirements also reduced the monetary incentives to both keep and attract new personnel. Congress' approved military pay increases for three years were actually less than the rate of inflation due to these factors. The country then experienced erosion in real income that eventually caused a "pay gap" between civilian and military jobs. This pay gap began to receive media attention, so Congress increased military pay rates faster than inflation to close the gap. The rise in military pay versus inflation can be seen in Figure 1, which illustrates the substantial variance between the two.

However, the disparity between military pay increases and inflation may soon come to an end. Congress has enacted new laws that assist military service members. In

November 2004, a permanent law 37 USC 1009 was amended to mandate that military monthly pay will now be increased by at least the annual percentage increase of the Employment Cost Index (Goldich, 2005). The Employment Cost Index (ECI) is calculated by the U.S. Department of Labor and Statistics and measures how much civilian pay increases per year. Additionally, HR 1585, section 606 of fiscal year 2008's Department of Defense's budget request, guarantees military pay raises that are 0.5 percent higher than the ECI through FY 2012, although this has yet to be approved (H.R. 1585, 2007). This disparity between the rate of inflation and the ECI could theoretically be mitigated by passing these laws. However, potential for risk still exists as lawmakers, who have the ability to increase military pay, can pass another law repealing the amendment to 37 USC 1009 in the event of a massive downsizing or some other reason.
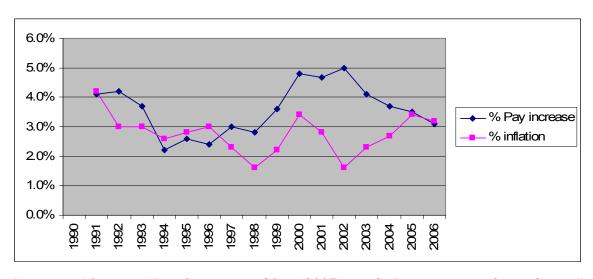
Figure 1.   Inflation Rate vs. Average Annual Increase in Military Pay

Source: After DFAS military paytables (2007); and CPI averages from the U.S. Department of Labor, Bureau of Labor Statistics (2007). Line Chart was created based on information provided in these two references.

3. Risks Applicable to Term Life Insurance Alternatives

There are two major risks associated with a life insurance option: financial health of the life insurance company, and the possibility that the benefit runs out prior to the beneficiary's death. These risks are not completely avoidable, but can be mitigated with proper research and planning.

Life insurance companies can face financial troubles like any other business. While insolvency is not common, it can and does happen. In cases where the insurance company goes bankrupt, many policy holders lose their coverage and accounts. However, there are programs which may help investors or beneficiaries of life insurance policies. Michael Moran, spokesperson for the American Insurance Association says:

> There is, in every state, an insolvency fund. When insurers go insolvent, trustees from that company pay the claims they can, but very often there are claims still pending after the insolvent insurer ceases to exist. These pending claims come to the insolvency fund to be paid out over a period of time. What this law says is that high-net-worth insured's — be that an individual or company with a net worth of more than $25 million — cannot make a first-party claim against the insolvency fund. There is always pressure to meet the demand, and the public policy rationale is that you want to pay the claims to the people who need it most first with the available dollars (Claims, 2006, p.46).

While the insolvency fund may partially protect investors, it is neither an absolute nor a universal solution. This fund is designed to assist individuals who should receive claims, as opposed to those who paid premiums, but have yet to have a reason to make a claim. For example, a 70-year-old man with a whole life insurance policy may recover nothing if the insurance company goes bankrupt. A good way to mitigate this problem is conducting basic research on the life insurance company's financial health. While smaller insurance companies may have lower rates than that of larger companies, they could also be financially less stable.

Inflation can likewise pose a great risk to the life insurance alternative as the value of a fixed benefit may decline greatly over an extended period of time. One considering a life insurance policy determines the value of the insurance policy by

calculating how much their family would need in the event of their death; the insurance purchased is usually fixed in today's dollars. However, the time of death may not be for 30 to 40 years in the case of military retirees, as military service members can retire at a relatively early age. If a retiree is attempting to determine how much life insurance his family will need in 30 to 40 years, the rate of inflation will have a huge impact on this calculation.

This effect of inflation leads to the second and probably the most dangerous risk associated with life insurance; the beneficiary running out of money. This can easily happen if beneficiaries spend more than they should from a budgetary standpoint or if the life insurance benefit was merely too low to account for inflation. However, if the retiree takes into account that inflation may be rather high, then he or she may purchase an extremely expensive life insurance option that may or may not be paid for an extended period of time.

To reduce these risks, a twofold course of action would generally be best. First, a health assessment should be taken prior to deciding what type of provisions to make. If the retiree is disabled or possesses some sort of ailment that lowers his or her life expectancy, then the retiree reaches the next decision point. Health ailments can dramatically increase the premiums one would pay for life insurance; therefore, the retiree should determine if there is a policy that he or she can purchase that is not too costly. Second, if no such policy exists, then SBP might be a good option. However if a policy is available then the retiree must determine which option would present them with the highest final NPV: SBP or the life insurance policy. However, if no physical malady exists, then a smaller life insurance option might be a good choice. As time goes on, depending on the retiree's financial position, additional life insurance can be purchased to account for the effects of inflation.

4.   Risks Applicable to an Index Fund Alternative

The risks of the stock market can be equated to the risk one encounters when investing in the Standard and Poor's 500 Index as opposed to SBP. This alternative is not

nearly as risky as choosing to invest in a single stock due to the risk mitigation that occurs when investments are diversified. However, the rise and fall of the stock market in general creates an inherent risk. While the stock market has generally done very well in the long-run, it has major swings in the short run. For example, the Dow Jones Industrial Average (DJIA) has grown at roughly 11.72 percent per year since 1983 (Dow Jones & Company, 2007). This may sound like a decent investment, but during that period of time there were years where the DJIA declined at rather rapid rates, like in 2002 when the DJIA declined 16 percent in value.[2] Rapid swings in stock market price could greatly affect investors, especially if income stability is critical. While the average returns of the stock market may make it appealing for long-term investment, short-term instability makes it a risky option for retirement income, particularly in the short run.

5. Risks Applicable to T-Bill Alternatives

T-bills pose a small risk that one's beneficiary runs out of money. There is a possibility that the T-bill's financial backer, the U.S. Government, will go under during the lifespan of the beneficiary, but the likelihood of that occurring is slim. If an individual retiree were to invest in T-bills as opposed to SBP, then this would constitute an investment that would never be lost, as T-bills can be willed to other parties in the event of the beneficiary's early death. However, the SBP pays beneficiaries indefinitely while a T-bill account could be exhausted depending on size of the account and the beneficiary's spending rate. A means to reduce the risk of index funds and T-bills is a combined strategy that includes investments in both alternatives. This would mitigate some of the risk inherent in the swings of the market, while earning a higher rate of average return than achieved by investing in T-bills alone.

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[2] All Dow Jones Industrial Average data has been received from the DJIA website http://www.djindexes.com/mdsidx/downloads/xlspages/DJIA_Hist_Perf.xls. While this website does not give the break down of the average gain or loss over the time frame referenced, the mean is easily calculated using the data points contained on the website.

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VI.   COMPARISON OF VARIOUS RETIREE OPTIONS

A.   OVERVIEW

To determine if the SBP is a good financial option, multiple scenarios must be analyzed. Outcomes from the model can vary greatly depending on the inputs the user defines when entering their information into the model. Therefore, an in-depth analysis will be conducted into five different retiree scenarios to judge the financial feasibility of the SBP. The variables for each respective scenario will be entered into the model to determine the optimal financial plan. The results calculated by the model are discussed below. To illustrate how the model is affected by the user's demographics, the analysis will keep certain variables constant. For these purposes, the analysis will assume a 2.5% inflation rate and 5.0% nominal rate for the opportunity cost of capital.

1.   Scenario One

The service member is a 38-year-old male, who is an E-7 with 20 years of service for retirement purposes, and who desires a financial plan that will cover his 38-year-old wife and 10-year-old child. All of these characteristics are then inputted into the model assuming an average life expectancy for both the retiree and the spouse. The model yields the data presented in Figure 2.

Figure 2.   NPV Results from Scenario One

Alternative	NPV
SBP	-13186.93
Index Fund	20073.83
Insurance	-18583.84

Source: From SBP Model

If the retiree were to invest all prospective SBP contributions into an index fund that yielded a 5.0% increase per year, then this alternative provides the best result (e.g.,

highest NPV value). This of course assumes that the ages at death for both the retiree and his spouse are based upon the national average; 76 and 81, respectively. However, results can change significantly depending upon the ages of death. To illustrate the sensitivity to death ages refer to Figure 3, which is a less detailed version of the graph depicted in Appendix A.

Figure 3.   **Sensitivity Analysis Result of Scenario One**

Source: After Appendix A of SBP Model

While the index fund, noted as MS in the data table, is the best option using the average life expectancy for both the spouse and the retiree, it is not always the best plan. The above figure displays a macro version of the sensitivity analysis. The area indicated in red signifies the periods when the term life insurance policy is the best financial plan. In this particular example, if the retiree were to die within 30 years after retirement, then the term life insurance policy would have the highest NPV. However, the term life

insurance policy is not indicated as the best option if the expected age of death of the retiree is beyond that 30 year period. Rather, the index fund becomes the best option (the area highlighted in blue in Figure 3). If the retiree were instead to invest in an index fund for a long period of time, then he would essentially be self insured because the investment would grow substantially during retirement. The areas in blue and red dominate the figure, indicating that index funds and term life insurance options are the best financial plans for the majority of the time.

The question then arises as to when SBP is the best option. Referring to Appendix A, SBP only becomes the best option for the retiree if he dies at 68 and his spouse outlives him beyond 78 years of age. By looking at Figure 3, there is only a very small window where SBP (indicated in green) yields the highest NPV compared to the other investment options. This occurs only when life insurance has expired and the beneficiary survives his or her spouse for a long enough time period that the money in the index fund runs out before the beneficiary becomes deceased. This figure demonstrates that SBP becomes the best option for only a small percentage of the time.

2. Scenario Two

Scenario Two assumes that the retiring service member is a 48-year-old female with 30 years of service. This individual is an E-9 who desires a financial plan to cover her 48-year-old husband. While using the same rates for the opportunity cost of capital and inflation, the model yielded the results seen in Figure 4.

Figure 4.   NPV Results of Scenario Two

Alternative	NPV
SBP	-117809.97
Index Fund	30149.23
Insurance	-35953.64

Source: From SBP Model

The results from the model show that once again the generic investment has the highest NPV compared to the life insurance option and the SBP option. These results are similar to Scenario One and additionally, the data tables for Scenario One (Appendix A) and Two (Appendix B) also show remarkably similar sensitivities to life expectancy variance. Despite the similarities between the two scenarios, one distinctive exception exists; the SBP has an even smaller window of optimality in this scenario.

3. Scenario Three

Scenario Three assumes that the retiring service member is a male who is 44 years old with 22 years of active duty. This retiring service member is an O-5 who wishes to cover his 44-year-old wife and five-year-old child. Assuming the same rates for inflation and the opportunity cost of capital as in the previous scenarios, all input values are entered into the SBP model. The model results are shown in Figure 5.

Figure 5.   NPV Results of Scenario Three

Alternative	NPV
SBP	-21312.53
Index Fund	31447.35
Insurance	-33639.48

Source: From SBP Model

Likewise, this looks very similar to the previous scenarios, where the NPV of the SBP and the term life insurance option are both negative. The index fund alternative represents the best option in all of these scenarios. Additionally, the sensitivity analysis as seen in Appendix C looks very similar to the previous scenarios, where the SBP option is the best alternative for a very small area of the data table. The results of these three scenarios indicate that the SBP is seldom the preferred option, even as rank and years of service vary.

4. Scenario Four

This scenario assumes that all input variables are the same as in Scenario Three with one exception: assume that the spouse (female) is 4 years younger than the retiree, instead of being the same age as in all previous scenarios; the spouse is 40 years of age as opposed to 44. Given this new set of inputs the model yields the results seen in Figure 6.

Figure 6.   NPV Results of Scenario Four

Alternative	NPV
SBP	20010.55
Index Fund	31469.43
Insurance	-33656.20

Source: From SBP Model

Contrary to the previous scenarios, the SBP has a positive NPV. In the previous examples, the NPV of the SBP never resulted in a positive value. While the generic investment still has the highest NPV using average life expectancies for the beneficiaries and the retiring officer, the result is less clear. Looking at the sensitivity analysis provides some insight as to how the spouse's age can change the end result. Appendix D contains the sensitivity analysis for this particular scenario. Note that SBP now has a larger age-of-death window signifying it is the best option a greater percentage of the time than in the previous examples. This result demonstrates that differences in age of the retiree and the spouse can change the preferred financial plan. Additionally, this result supports the common belief: the Survivor Benefit Plan is best suited for retirees married to younger spouses. This reflects that the longer a spouse lives after the retiree dies, the greater the benefit he or she receives from the Government at no additional cost.

5. Scenario Five

This last scenario looks at the effects of inflation upon the model. The variables are identical to Scenario Three with one exception; the inflation rate will be different. In previous examples the inflation rate has remained the same, at a constant rate of 2.5 percent. In this scenario, however, the inflation rate will be changed to 7.0 percent. The results from the model are displayed in Figure 7.

Figure 7.   NPV Results of Scenario Five

Alternative	NPV
SBP	80396.12
Index Fund	270961.85
Insurance	-60396.22

Source: From SBP Model

In this particular example the results displayed in Figure 7 are still very similar to that of previous scenarios where the index fund still yields the best option; however the sensitivity analysis as seen in Appendix E looks dramatically different. In this particular scenario, the SBP proves to be the best option the majority of the time. This result is not unexpected as the SBP is indexed for inflation, whereas the life insurance benefit is not. This increase in inflation dramatically increases the NPV of the SBP option during 30 years of payments. One may pose the question as to why the index fund still maintains a large share of the data table. The reason is due to similar factors affecting increases in the SBP area.

As inflation increases, so does military pay, which affects the model in multiple ways. First, as retirement payments increase, the amount invested in an index fund and SBP premiums also increase. Second, as the SBP benefits increase with inflation, so do the costs. Consequently, the effect of inflation increase has a dramatic effect on the comparison to life insurance but little to no effect on the comparison to the index fund.

VII. SUMMARY, CONCLUSIONS, AND TOPICS FOR FURTHER RESEARCH

A. SUMMARY AND CONCLUSIONS

The Survivor Benefit Plan is advertised by the Department of Defense as a great deal to retiring military service members. While the SBP may be a good plan for some, it is not always the best option for everyone. More often than not, other options present a greater benefit for retiring service members than the SBP. Based upon the results of the model that has been created to assess the SBP, it can be empirically proven that, given equivalent investment amounts, term life insurance policies or investments, such as T-bills, can have a higher net present values than the SBP. While each financial plan has its own risks, the benefits that term life insurance or generic investments offer can outweigh those of the SBP. Most retiring service members are not in situations where they are likely to fully exploit the advantages of the SBP.

Two situations where the SBP offers the greatest advantage are either if the service member is in poor health and cannot obtain life insurance with a reasonable premium or if the service member has a spouse that is significantly younger or expected to live significantly longer. In these unique scenarios the service member should take the SBP option over any other alternative, as the SBP yields the highest net present value. However, in the majority of scenarios the SBP is not the best option for retiring service members. While the SBP is a viable option for safeguarding one's family against financial hardships in the event of the retiree's death, other options are better suited to protect family members in the long-run.

B. TOPICS FOR FURTHER RESEARCH

To create an even more accurate model that determines the best financial plan compared to the SBP, other input variables should be considered. While the model that was created in conjunction with this research project is accurate in terms of its NPV calculations, it may not always be correct. The model here does not include an input

variable for health status. This input variable can have a dramatic effect on the model's recommendations. Incorporating this particular variable was beyond the scope of this research. However, the question of health must be considered to make this a truly accurate model. The retiree's health status will greatly affect two separate assumptions contained within the model; life expectancy and life insurance premiums. Currently, the model assumes average life expectancies and life insurance premiums for people in good physical health. However, disabled veterans have potentially decreased life expectancy and therefore higher life insurance premiums. Issues regarding disabled service members should be explored in greater detail for a more complete financial analysis.

An additional area for future exploration is to create a simulation model. The current model uses actuarial tables to determine average life expectancy and uses expected age of death as opposed to probabilities of death. Future research should explore the use of death probabilities as opposed to estimated age of death. By including death probabilities the model will provide a probabilistic representation of the best financial option. It will indicate which option is best depending upon the probability of death within a certain time frame. Additionally, a Monte Carlo simulation could be conducted to determine the sensitivity of the model to the death probabilities (e.g., what is the probability that SBP is the best option, that an investment fund is the best option, or that term life insurance is the best option).

Another issue for future exploration is in the area of child only coverage. The SBP provides benefits only to children who are under the age of 18 years old or 22 depending on the circumstances (see Children Only section). When the child reaches adulthood, then the benefits cease completely. The life insurance policies studied in this project were restricted to level term policies. However, these types of policies do not provide an appropriate comparison to the SBP due to the length of time that the beneficiary will receive monetary compensation. Therefore, a declining term life insurance policy providing declining premiums as the beneficiary ages is preferred and should be incorporated into the model. The expiration date for the declining term life insurance policy would be the date when the child reaches adulthood.
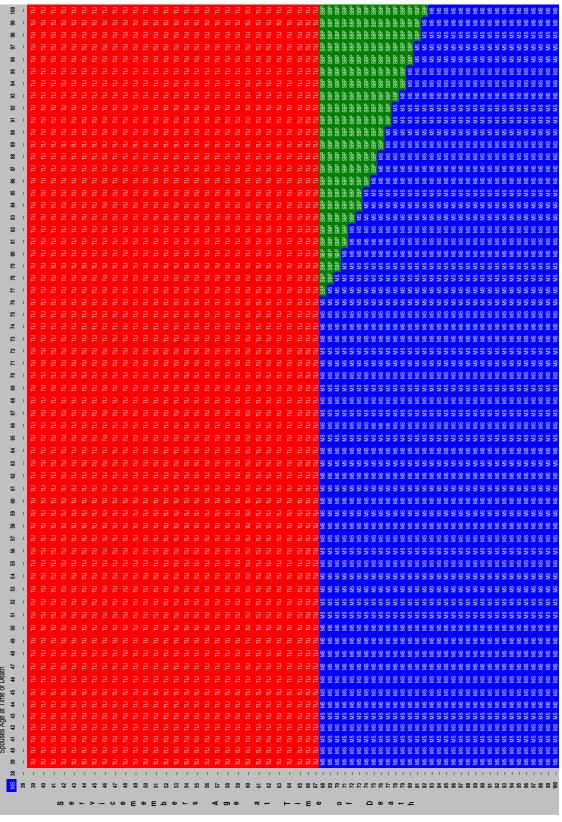
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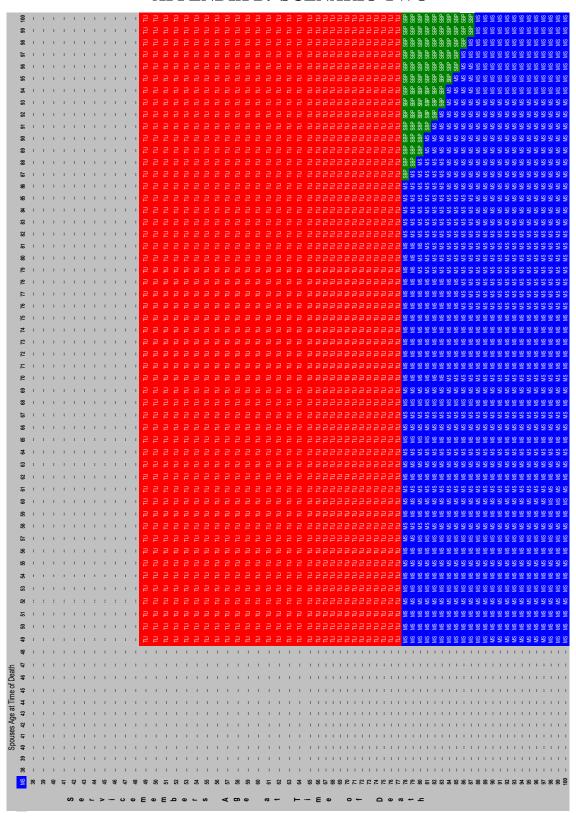   http://www.dfas.mil/militarypay/2006militarypaytables/militarypaypriorrates.ht
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APPENDIX A. SCENARIO ONE

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APPENDIX B. SCENARIO TWO

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APPENDIX C. SCENARIO THREE

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APPENDIX D. SCENARIO FOUR

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APPENDIX E. SCENARIO FIVE

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APPENDIX F. PREFERRED PLUS - GENERAL

	Preferred Plus	Preferred	Standard Plus	Standard
General History				
Family History	No cardiovascular disease or cancer in either parent or siblings prior to age 60.	No death from cardiovascular disease or cancer in either parent or siblings prior to age 60.	Not more than one parent death from cardiovascular disease or cancer prior to age 60.	Not more than one parent death from cardiovascular disease or cancer prior to age 60.
Cholesterol / HDL Ratio	May not exceed 5.0	May not exceed 6.0	May not exceed 7.0	Levels above 7.0 may qualify
Cholesterol Level	May not exceed 220	May not exceed 240	May not exceed 260	Levels above 260 may qualify
Blood Pressure	No history of treatment. May not exceed 140/85.	Currently controlled. Current and historic readings over last two years may not exceed 145/88	Currently controlled. Current and historic readings over last two years may not exceed 150/92	Currently controlled. Current and historic readings over last two years may not exceed 150/92
Alcohol / Substance Abuse	No history.	No history in the past 10 years.	No history in the past 7 years.	No history in the past 7 years.
Driving History	No DUI, DWI or reckless driving in the past 5 years. No more than 1 moving violations in the last 3 years.	No DUI, DWI or reckless driving in the past 5 years. No more than 2 moving violations in the last 3 years.	No DUI, DWI or reckless driving in the past 3 years. No more than 3 moving violations in the last 3 years.	No DUI, DWI or reckless driving in the past 2 years. No more than 3 moving violations in the last 3 years.
Aviation	Commercial airline pilots may qualify. Not available for private pilots.	Commercial airline pilots may qualify. Private pilots may qualify with an exclusion rider or extra premium.	Commercial airline pilots may qualify. Private pilots may qualify with an exclusion rider or extra premium.	Commercial airline pilots may qualify. Private pilots may qualify with an exclusion rider or extra premium.
Hazardous Avocation	Not available.	May be available with extra premium.	May be available with extra premium.	May be available with extra premium.
Residence and / or	Must be a U.S. resident for the	Must be a U.S. resident for the	Must be a U.S. resident for the	Must be a U.S. resident for the

Citizenship	past 3 years. Must be a US citizen or have permanent Visa.	past 3 years. Must be a US citizen or have permanent Visa.	past 3 years. Must be a US citizen or have permanent Visa.	past 3 years. Must be a US citizen or have permanent Visa.
Military	No active duty.	May be on active duty.	May be on active duty.	May be on active duty.
Foreign Travel	No travel to countries under State Department Advisory. Varies by company.	No travel to countries under State Department Advisory. Varies by company.	No travel to countries under State Department Advisory. Varies by company.	No travel to countries under State Department Advisory. Varies by company

APPENDIX G. PREFERRED PLUS - MEDICAL

Medical History				
Condition	Preferred Plus	Preferred	Standard Plus	Standard
Alcohol / Drug Abuse Dependency History	No	Yes	Yes	Yes
Anxiety	No	No	Yes	Yes
Arthritis (rheumatoid)	No	Yes	Yes	Yes
Asthma	No	Yes	Yes	Yes
Chronic Bronchitis	No	Yes	Yes	Yes
Cancer	No	No	No	Yes
Cardiovascular / Heart Disease	No	No	No	Yes
Cholesterol Treatment	No	Yes	Yes	Yes
Chronic Obstructive Pulmonary Disease	No	Yes	Yes	Yes
Crohn's Disease	No	No	No	Yes
Depression	No	No	Yes	Yes
Diabetes Type I *	No	No	No	No
Diabetes Type II	No	No	No	Yes
Emphysema	No	No	No	Yes
Epilepsy	No	No	Yes	Yes
Hypertension (High Blood Pressure)	No	Yes	Yes	Yes
Kidney / Liver Disease (chronic)	No	No	No	Yes
Melanoma	No	No	No	Yes
Multiple Sclerosis	No	No	No	Yes
Sleep Apnea	No	No	No	Yes
Stroke (including TIA)*	No	No	No	No
Ulcerative Colitis	No	No	No	Yes
Vascular Disease	No	No	No	Yes

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APPENDIX H. USEFUL SBP LINKS

DISCLAIMER: These links are current as of the publishing date of this research and are subject to changes.

SBP Model (2007):
http://bosun/nps.edu/uhtbin/hyperion-image.exe/07Dec_Beatty_Kang.xls

http://www.navymutual.org/services/federalbenefits/sbp-facts.html

https://www.manpower.usmc.mil/portal/page?_pageid=278,1950391&_dad=portal&_schema=PORTAL

https://www.hrc.army.mil/site/reserve/soldierservices/retirement/sbpsocialsecurity.htm

http://www.dfas.mil/retiredpay/survivorbenefits/socialsecurityoffset.html

http://www.dfas.mil/retiredpay/frequentlyaskedquestions/survivorbenefitsplanfaqs.html

http://www.defenselink.mil/militarypay/survivor/sbp/01_overview.html

https://w11.afpc.randolph.af.mil/RetSepCalcNet/default.aspx

http://www.military.com/benefits/survivor-benefits/survivor-benefit-plan-explained

http://www.military.com/benefits/survivor-benefits/survivor-benefit-plan-faqs

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